

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

1-2. (Cancelled)

3. (Previously Presented) The method of claim 19, wherein the polymer electrolyte membrane comprises perfluorosulfonic acid membrane; electrolyte membrane made of proton conducting hydrocarbon material; or electrolyte membrane made of proton conducting fluorine material.

4-7. (Cancelled)

8. (Previously Presented) The method of claim 19 wherein the PECVD method has a microwave power at the range of 10 watts to 500 watts.

9. (Previously Presented) The method of claim 19 wherein a reaction chamber pressure of the PECVD method is in the range of 1.0 to 1000 millitorr.

10. (Previously Presented) The method of claim 19 wherein an argon pre-treatment electromagnetic wave power of the PECVD method is in the range of 10 watts to 500 watts.

11. (Previously Presented) The method of claim 19 wherein a argon pre-treatment pressure of the PECVD method is in the range of 1.0 to 500 millitorr.

12. (Previously Presented) The method of claim 19 wherein a reaction gas pressure in a chamber of the PECVD method is in the range of 10 to 500 millitorr.

13. (Canceled)

14. (Previously Presented) The method of claim 19 further comprising a step of coating a surface of the composite membrane with a proton-conducting ionomer solution, after coating the inorganic thin film on the surface of polymer electrolyte membrane, so as to enhance contact with electrodes during manufacturing membrane-electrode assembly.

15. (Withdrawn) A composite polymer electrolyte membrane coated with inorganic thin films for fuel cells manufactured according to claim 1.

16. (Withdrawn) An MEA employing the composite polymer electrolyte membranes coated with inorganic thin films manufactured according to claim 1.

17. (Previously Presented) A method for manufacturing an MEA comprising a step of coating catalyst for electrode directly on the composite manufactured according to claim 19.

18. (Withdrawn) A fuel cell employing the composite polymer electrolyte membranes coated with inorganic thin films or the MEA containing the said composite membrane manufactured according to claim 1.

Amendment dated March 1, 2010

Reply to Office Action of December 1, 2009

19. (Currently Amended) A method for manufacturing composite membranes for a fuel cell, comprising a step of coating a surface of polymer electrolyte membrane with inorganic thin film using a plasma enhanced chemical vapor deposition (PECVD) method, thereby obtaining the composite membrane,

wherein inorganic material of the inorganic thin film is one or more selected from the group consisting of silicon oxide ( $\text{SiO}_2$ ), titanium oxide ( $\text{TiO}_2$ ), zirconium oxide ( $\text{ZrO}_2$ ), zirconium phosphate ( $\text{Zr}(\text{HPO}_4)_2$ ), ~~zeolite~~, silicalite, and aluminum oxide ( $\text{Al}_2\text{O}_3$ );

~~and wherein the PECVD method uses reactants comprising the inorganic thin film is made by using~~ one or more organic metal compound(s) selected from the group consisting of trimethyl disiloxanes (TMDSO), hexamethyl disiloxane (HMDSO), hexamethyl disilane, tetramethyl orthosilicate, tetrabutyl orthosilicate, tetra-isopropyl orthosilicate, aluminium methoxide, aluminium ethoxide, aluminium butoxide, aluminium isopropoxide, titanium ethoxide, titanium methoxide, titanium butoxide, titanium isopropoxide, zirconium ethoxide, and zirconium butoxide in conjunction with one or more gases selected from the group consisting of nitrogen, hydrogen, steam, and argon;

the inorganic thin film has a thickness of 1.0 nanometer (nm) to 500 nm;

the composite membranes have an ionic conductivity of 0.071 S/cm or more; and

the composite membranes have a characteristic factor of  $54 \Omega^{-1}\text{cm}^{-3}$ s or more, wherein the characteristic factor equals (ionic conductivity/methanol permeability)  $\times 10^{-3}$ .

20-24. (Canceled)